Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-28 (cancelled)

Claim 29 (currently amended) The method of claim 32, wherein the heat exchanger further includes a hollow outer ~~conduit~~ tube disposed around the ~~fiber receiving conduit~~ hollow central tube and defining a chamber between the outer surface of the ~~fiber receiving conduit~~ hollow central tube and the inner surface of the hollow outer ~~conduit~~ tube, and the method further comprises:

flowing a third fluid medium through the chamber between an inlet port and an outlet port of the hollow outer tube ~~conduit~~.

Claim 30 (currently amended) The method of claim 29, wherein the third fluid medium comprises a fluid medium selected from the group consisting of ~~at least one of~~ water, one or more hydrocarbons, a substantially pure gas, ~~and~~ a substantially pure liquid, and combinations thereof.

Claim 31 (previously presented) The method of claim 30, wherein the fiber is passed through the internal passage of a plurality of heat exchangers, and the temperature of the third fluid medium flowing through the chamber of at least one heat exchanger is different than the temperature of the fluid medium flowing through the chamber of at least one other heat exchanger.

Claim 32 (currently amended) A method of cooling a fiber in a coolant system, the coolant system including a heat exchanger and a controller, the heat exchanger having:

a hollow central tube, ~~a fiber receiving conduit including~~

a fiber inlet,

a fiber outlet,

an internal passage disposed between the fiber inlet and fiber outlet and first and second adjustable seals ~~having variable orifices~~, wherein

i) the first and second adjustable seals partition~~ing~~ the internal passage into a first chamber, a second chamber and a primary cooling chamber,

ii) the controller ~~being~~ is in communication with the first and second adjustable seals,

iii) the first chamber has an inlet port

iv) the second chamber has an inlet port, and

v) each of the adjustable seals is an iris diaphragm, the iris diaphragm including a series of sliding plates that combine to form a generally circular orifice and which are selectively manipulable to increase and/or decrease a diameter of the orifice,

said ~~the~~ method comprising the steps of:

passing a fiber through the internal passage between the fiber inlet and the fiber outlet;

flowing a first fluid medium into the first chamber via the inlet port of the first chamber;

flowing a second fluid medium into the second chamber via the inlet port of the second chamber, wherein the flow of first and second fluid mediums achieves a lowering of the fiber temperature and the first and second fluid mediums are of the same or different gas composition; and

manipulating at least one of the adjustable seals, via the controller, to selectively adjust a dimension of the seal orifice, wherein the ~~first and second~~ at least one of the adjustable seals ~~are~~ is independently manipulated, via the controller.

Claim 33 (currently amended) The method of claim 32, wherein a composition of the first fluid medium is the same as the second fluid medium.

Claim 34 (currently amended) The method of claim 32, wherein a composition of the first fluid medium is different than a composition of the second fluid medium.

Claim 35 (currently amended) The method of claim 32, wherein ~~each of~~ :

the first fluid medium comprises a fluid medium selected from the group consisting of helium, neon, argon, krypton, xenon, hydrogen, nitrogen, carbon dioxide, and mixtures thereof; and

the second fluid ~~mediums comprises at least one~~ medium comprises a fluid medium selected from the group consisting of helium, neon, argon, krypton, xenon, hydrogen, nitrogen, ~~and~~ carbon dioxide, and mixtures thereof.

Claim 36 (currently amended) The method of claim 35, wherein the second fluid medium further comprises another fluid medium selected from the group consisting ~~at least one~~ of a silane, a phosphine, fluorine, chlorine, ~~and~~ gaseous organometallic compounds, and mixtures thereof.

Claim 37 (currently amended) The method of claim 32, wherein the second fluid medium comprises ~~one~~ a fluid medium selected from the group consisting of helium, hydrogen and a mixture of hydrogen and helium.

Claim 38 (currently amended) The method of claim 32, wherein the first fluid medium comprises a fluid medium selected from the group consisting ~~at least one~~ of argon, ~~and~~ carbon dioxide, and a mixture thereof.

Claim 39 (currently amended) The method of claim 32, wherein the fiber is passed through ~~the internal passage of~~ a plurality of the heat exchangers of claim 32, and the second fluid medium that is flowed into the second chamber of at least

one of the plurality of heat exchangers is different than the second fluid medium that flows into the second chamber of another one of the plurality of ~~at least one other~~ heat exchangers.

Claim 40 (currently amended) The method of claim 32, wherein:

the internal passage further includes third and fourth adjustable seals to further partition the internal passage into a third chamber and a fourth chamber,

each of the third and fourth adjustable seals is an iris diaphragm having a variable orifice, the iris diaphragm including a series of sliding plates that combine to form a generally circular orifice and which are selectively manipulable to increase and/or decrease a diameter of the orifice, ~~wherein~~

the fourth chamber includes an inlet port, ~~and~~

the third chamber is disposed between the fourth chamber and the primary cooling chamber and includes an inlet port, and

the controller is in communication with the third and fourth adjustable seals,

the method further comprising the steps of:

flowing the first fluid medium into the fourth chamber via the inlet port of the fourth chamber;

flowing the second fluid medium into the third chamber via the inlet port of the third chamber; and

~~wherein~~ independently manipulating the third and fourth adjustable seals ~~are independently manipulated~~, via the controller, to selectively adjust a dimension of the orifices ~~of each~~ associated with the third and fourth adjustable seals.

Claim 41 (currently amended) The method of claim 40, wherein the third chamber includes an outlet port that is in fluid communication with a recycle inlet port of the second chamber via a recycle line, and the coolant system further

includes a pump that is in communication with the controller, and the method further includes:

recycling the second fluid medium from the third chamber into the second chamber with the pump;

selecting a flow rate for the recycling of the second fluid medium from the third chamber into the second chamber; and

controlling the pump, via the controller, to ~~recycle the second fluid medium from the third chamber into the second chamber at a~~ achieve the selected flow rate.

Claim 42 (currently amended) The method of claim 32, wherein the coolant system further comprises a gas analyzer in fluid communication with an ~~extraction~~ withdrawl port disposed on at least one of the first, second and primary cooling chambers, and the controller is in communication with the gas analyzer, the method further comprising:

~~extracting~~ allowing a fluid sample from at least one of the first, second and primary cooling chambers to flow to the gas analyzer; and

measuring a concentration of one or more gases in the ~~extracted~~ fluid sample via the gas analyzer.

Claim 43 (original) The method of claim 42, wherein the gas analyzer measures the concentration of at least one of oxygen, nitrogen and carbon dioxide in the extracted fluid sample.

Claim 44 (currently amended) ~~The method of claim 42, wherein the controller effects manipulation of at least one of the first and second adjustable seals to adjust the dimension of the orifice associated with the manipulated seal when the measured concentration of one or more gases in an extracted fluid sample exceeds a threshold value~~ A method of cooling a fiber in a coolant system, comprising the steps of:

a) providing a coolant system including a heat exchanger, a gas analyzer, and a controller in communication with the gas analyzer, the heat exchanger having:

i) a hollow central tube;

ii) a fiber inlet;

iii) a fiber outlet;

iv) an internal passage disposed between the fiber inlet and fiber outlet; and

v) first and second adjustable seals having variable orifices, wherein

- the first and second adjustable seals partition the internal passage into a first, second and a primary cooling chambers, at least one of the first, second and primary cooling chambers having a withdrawl port in fluid communication with the analyzer,

- the controller is in communication with the first and second adjustable seals,

- the first chamber has an inlet port, and

- the second chamber has an inlet port;

b) passing a fiber through the internal passage between the fiber inlet and the fiber outlet;

c) flowing a first fluid medium into the first chamber via the inlet port of the first chamber;

d) flowing a second fluid medium into the second chamber via the inlet port of the second chamber, wherein the flow of first and second fluid mediums achieves a lowering of the fiber temperature;

e) allowing a fluid sample from at least one of the first, second and primary cooling chambers to flow to the gas analyzer;

f) measuring a concentration of one or more gases in the fluid sample via the gas analyzer

g) selecting a threshold value for a concentration of one of the gases in the fluid sample; and

h) based upon the measured concentration and the threshold value, manipulating at least one of the adjustable seals, via the controller, to selectively adjust a dimension of the associated seal orifice when the measured concentration of one of the gases in the fluid sample exceeds the threshold value.

Claim 45 (original) The method of claim 42, further comprising:

automatically manipulating a first valve connected with the inlet port of the first chamber, via the controller, to open or close so as to control the flow rate of the first fluid medium into the first chamber; and

automatically manipulating a second valve connected with the inlet port of the second chamber, via the controller, to open or close so as to control the flow rate of the second fluid medium into the second chamber.

Claim 46 (original) The method of claim 45, wherein the controller effects manipulation of at least one of the first and second valves to open or close when the measured concentration of one or more gases in an extracted fluid sample exceeds a threshold value.

Claim 47 (previously presented) The method of claim 32, wherein the fiber is an optical fiber.

Claim 48 (currently amended) A method of cooling a fiber utilizing a coolant system including a heat exchanger with an internal passage having a plurality of chambers and at least one adjustable seal that forms a partition between two adjacent chambers, a gas analyzer in fluid communication with at least one chamber of the internal passage, and a controller in communication with the gas analyzer and the at least one adjustable seal, the method comprising:

passing a fiber through the internal passage of the heat exchanger;

flowing a fluid medium through at least a portion of the internal passage to contact the fiber passing through the internal passage;

~~extracting~~ allowing a fluid sample to flow from the at least one chamber via the gas analyzer;

measuring a concentration of at least one gas in the extracted fluid sample via the gas analyzer;

selecting a threshold value for a concentration of of the at least one gas in the fluid sample; and

based upon the measured concentration and the threshold value, manipulating ~~effecting~~, via the controller, ~~an adjustment of~~ at least one of a dimension of a variable orifice of the at least one adjustable seal and the flow rate of fluid medium within the internal passage when the measured concentration of the at least one gas in the extracted fluid sample exceeds a the threshold value.

Claim 49. (new) A method of cooling a fiber in a coolant system, the coolant system including a heat exchanger and a controller, the heat exchanger having:

a hollow central tube,

a fiber inlet,

a fiber outlet,

an internal passage disposed between the fiber inlet and fiber outlet and first and second adjustable seals having variable orifices, wherein

i) the first and second adjustable seals partition the internal passage into a first chamber, a second chamber and a primary cooling chamber,

ii) the controller is in communication with the first and second adjustable seals,

iii) the first chamber has an inlet port, and

iv) the second chamber has an inlet port

said method comprising the steps of:

passing a fiber through the internal passage between the fiber inlet and the fiber outlet;

flowing a first fluid medium into the first chamber via the inlet port of the first chamber;

flowing a second fluid medium into the second chamber via the inlet port of the second chamber, wherein the flow of first and second fluid mediums achieves a lowering of the fiber temperature; and

manipulating at least one of the adjustable seals, via the controller, to selectively adjust a dimension of the seal orifice, wherein the at least one of the adjustable seals is independently manipulated, via the controller.